

CLAIMS

What is claimed is:

- 5
1. A method for exposure control, comprising the steps of:
- 10 determining a number of clipped pixels from an image scene for one or more of a set of possible exposures;
- 15 determining a selected exposure from the possible exposures such that the possible exposures higher than the selected exposure increase the number and the possible exposures less than the selected exposure do not substantially decrease the number.
2. The method of claim 1, wherein for each possible exposure the step of determining a number of clipped pixels comprises the steps of:
- 20 measuring an amplitude of each of a set of pixels in the image scene;
- generating a histogram of a number of the pixels from the image scene verses the corresponding amplitude;
- 25 detecting a jump in the number of pixels at a high pixel amplitude.
3. The method of claim 1, wherein the step of determining a number of clipped pixels comprises the steps of:
- 30 setting a starting exposure and determining the number of clipped pixels from the image scene for the starting exposure;

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setting a series of increased exposures and
determining the number of clipped pixels from the
image scene for the increased exposures;

5 setting a series of decreased exposures and
determining the number of clipped pixels from the
image scene for the decreased exposures.

10 4. The method of claim 1, wherein the step of
determining a selected exposure comprises the steps
of:

 determining a subset of the possible exposures
for which the number is relatively unchanged;

15 determining a first one of the possible
exposures higher than the subset for which the number
increases.

20 5. An apparatus for exposure control, comprising:
 means for determining a number of clipped pixels
from an image scene for one or more of a set of
possible exposures;

25 means for determining a selected exposure from
the possible exposures such that the possible
exposures higher than the selected exposure increase
the number and the possible exposures less than the
selected exposure do not substantially decrease the
number.

30 6. The apparatus of claim 5, wherein for each
possible exposure the means for determining a number
of clipped pixels comprises:

 means for measuring an amplitude of each of a
set of pixels in the image scene;

means for generating a histogram of a number of the pixels from the image scene verses the corresponding amplitude;

5 means for detecting a jump in the number of pixels at a high pixel amplitude.

7. The apparatus of claim 5, wherein the means for determining a number of clipped pixels comprises:

10 means for setting a starting exposure and determining the number of clipped pixels from the image scene for the starting exposure;

15 means for setting a series of increased exposures and determining the number of clipped pixels from the image scene for the increased exposures;

setting a series of decreased exposures and determining the number of clipped pixels from the image scene for the decreased exposures.

20 8. The apparatus of claim 5, wherein the means for determining a selected exposure comprises:

means for determining a subset of the possible exposures for which the number is relatively unchanged;

25 means for determining a first one of the possible exposures higher than the subset for which the number increases.

9. A digital camera, comprising:

30 image sensor;

exposure mechanism that provides a set of possible exposures to the image sensor from an image scene;

image processor that determines a number of
clipped pixels from the image scene for one or more
of the possible exposures and that determines a
selected exposure from the possible exposures such
5 that the possible exposures higher than the selected
exposure increase the number and the possible
exposures less than the selected exposure do not
substantially decrease the number.

10 10. The digital camera of claim 9, wherein the image
processor determines the number of clipped pixels by
using the image sensor to measure an amplitude of
each of a set of pixels in the image scene and then
generating a histogram of a number of the pixels from
15 the image scene verses the corresponding amplitude
and then detecting a jump in the number of pixels at
a high pixel amplitude.

20 11. The digital camera of claim 9, wherein the image
processor determines the number of clipped pixels by
setting a starting exposure using the exposure
mechanism and then determining the number of clipped
pixels from the image scene for the starting exposure
and setting a series of increased exposures and
25 decreased exposures using the exposure mechanism
while determining the number of clipped pixels from
the image scene.

30 12. The digital camera of claim 9, wherein the image
processor determines a selected exposure by
determining a subset of the possible exposures for
which the number is relatively unchanged and by
determining a first one of the possible exposures

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higher than the subset for which the number
increases.

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